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Your Reference:
Application No: GB0412497.0

30 June 2004

Dear Sirs

**Patents Act 1977:
Combined Search and Examination Report under Sections 17 and 18(3)**

Latest date for reply:

29 September 2004

I enclose two copies of my search and examination report and two copies of the citations.

By the above date you should either file amendments to meet the objections in the report or make observations on them. If you do not, the application may be refused.

Publication

I estimate that, provided you have met all the formal requirements, preparations for publication of your application will be completed soon after 3 August 2004. At this time you will receive a letter confirming the exact date when the preparations for publication will be completed. This letter will also tell you the publication number and date of publication of your application.

Withdrawal/amendment

If you wish to withdraw your application before it is published you must do so before the preparations for publication are complete. **WARNING** – after preparations for publication are complete it will NOT be possible to withdraw your application from publication.

If you wish to file amended claims for inclusion with the published application you must do so before the preparations for publication are completed. If you write to the Office less than 3 weeks before 3 August 2004 please mark your letter prominently:

'Use of E-mail: Please note that e-mail should be used for correspondence only.
An Executive Agency of the Department of Trade and Industry



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"URGENT - PUBLICATION IMMINENT".

Yours faithfully

Mr Rob Lynch
Examiner



Application No: GB0412497.0

Examiner: Mr Rob Lynch

Claims searched: 1-64

Date of search: 29 June 2004

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular reference
X	1 - 4 and 7	US4162619 A (Maurer Engineering, Inc.) See figures 2 - 6 noting mandrel 11 with non circular cross section, and packing elements 36, 38, 138 & 238 with non circular inner surface, mounted around the mandrel

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^W:

E1E

Worldwide search of patent documents classified in the following areas of the IPC⁰⁷

E21B

The following online and other databases have been used in the preparation of this search report

Online: EPODOC, WPI, PAJ, OPTICS



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Patents Act 1977
Examination Report under Section 18(3)

Allowance of the divisional date

1. Your request that this application be treated as having been filed on 28 June 2001, which is the same date of filing as your earlier application number GB0229524.4, has been allowed.

Plurality of invention

2. Your claims define a number of separate inventions not forming a single inventive concept. The inventions are:

- (a) Claim 1 A subterranean apparatus having a mandrel with a non-circular outer surface, and a packing element arranged around the mandrel with a non circular inner surface
- (b) Claim 65 A method of isolating a portion of well utilising a plug featuring a mandrel with a non-cylindrical outer surface
- (c) Claim 72 A method of drilling out a non metallic subterranean apparatus

3. You will need to amend your claims, so that they relate to only one invention or inventive concept. You will also need to make consequential amendments to the description. You may wish to consider filing divisional applications. Any such applications should normally be filed no later than 3 months before the expiry of the period for putting the present application in order.

Scope of search

4. In accordance with Section 17(6), only the first of these inventions has been searched. The other inventions can be searched if you wish. In this case you will have to file a further Form 9/77 for each of the additional inventions to be searched.

What this report covers

5. I have not been able to consider the novelty or obviousness of the unsearched inventions.



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[Examination Report contd.]

Novelty

6. The invention as defined in claims 1 - 4 & 7 is not new because it has already been disclosed in the following document:

(a) US 4162619 A (Maurer Engineering, Inc.)

See figures 2 - 6 noting mandrel 11 with non circular cross section, and packing elements 36, 38, 138 & 238 with non circular inner surface, mounted around the mandrel.

7. US 4162619 demonstrates that it is known to have subterranean apparatus whereby a mandrel with a non circular cross section is provided, with a non circular packing piece mounted around the mandrel. As such, claims 1 - 4 and 7 are anticipated by this document.

8. When amending your claims to overcome the above objection, please bear in mind that merely specifying that the mandrel is made from reinforced plastic, as claimed in claims 5 and 6, is not inventive in view of the disclosure of the above document.

Clarity of Claims

9. Although pages 2 - 8 disclose various embodiments of the invention, no clear statements of invention are present, thus leading to ambiguity between the description and the claims, especially as a number of the embodiments disclosed are not covered by the claims of this application.

10. Furthermore, care should also be taken to ensure that the figures and associated description state clearly those embodiments that do not form part of the present invention, to ensure that no conflict is present between the figures and the claims.

11. Although claim 1 is for an apparatus, per se, the passage "*such that rotation.....* *.....interfere with one another in rotation*" appears to define essential features of the invention in terms of a method of use, thus casting doubt on the scope of the claim. A similar problem arises in claims 10, 23, 26, 29, 35, 51 and 59.

12. Although the claims (notably claims 35 - 39, 41, 42 and 71) state that it is the second cone that is collapsible, it appears from lines 13 - 26 of page 19 that it is in fact the first cone that is collapsible, and as such, doubt is cast on the scope of the claims.

13. There is conflict between claims 17 and 20, as although claim 17 states that the slips are formed from cast iron, claim 20, which is appended to claim 17, states that they are in fact formed from non-metallic materials.



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[Examination Report contd.]

14. Similarly, although claim 31 states that the slips are made of cast iron, this claim can be appended back to claim 20, which states that they are formed from non-metallic materials. Claim 33, appended to claim 31, also states that the slips are non-metallic, and as such, this claim also conflicts with claim 31.

15. It is not clear what limitation the term "substantially" imparts on the scope of claims 64 and 72, since this term is relative, and as such, can be interpreted in different ways.

16. Claims 76 & 77 should be removed, as they appear to be directed to the whole disclosure of the description, and as such, are in conflict with the claims of both the parent and co-pending divisional applications.

17. The passage "spirit and scope of the invention" on line 17 of page 10 of the description casts doubt on the scope of the claims, and should be removed.

Non-metric units

18. The equivalent metric values should be given alongside the non-metric values mentioned on pages 14 - 16, 18 and 19 of your specification.

Registered Trade Marks

19. Although it should preferably be avoided, if you wish to keep the reference to the Registered Trade Marks "Baker" on page 17, and "Rylon" and "Teflon" on page 18 of your specification, you should acknowledge that they are Registered Trade Marks, possibly by using the abbreviation "(RTM)". If you do not insert acknowledgments, I will do so in manuscript.

Title of the application

20. At present, the title of the application is a "Drillable bridge plug". However, this appears inconsistent with the invention for two reasons, as outlined:

- (a) Claim 1 is merely for any slip assembly suitable for use on subterranean apparatus, and as such not limited to a plug.
- (b) Line 29 of page 22 - line 3 of page 23 states that the invention is not limited to plugs.

Other matters

21. Although the drawings contain reference numerals, no mention is made of these in the description. Paragraph 14.55 of The Manual of Patent Practice states that "Reference signs



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not mentioned in the description and claims should not appear in the drawings and vice versa", and as such, some revision will be necessary.

Publication

22. The publication of this document is proceeding concurrently.